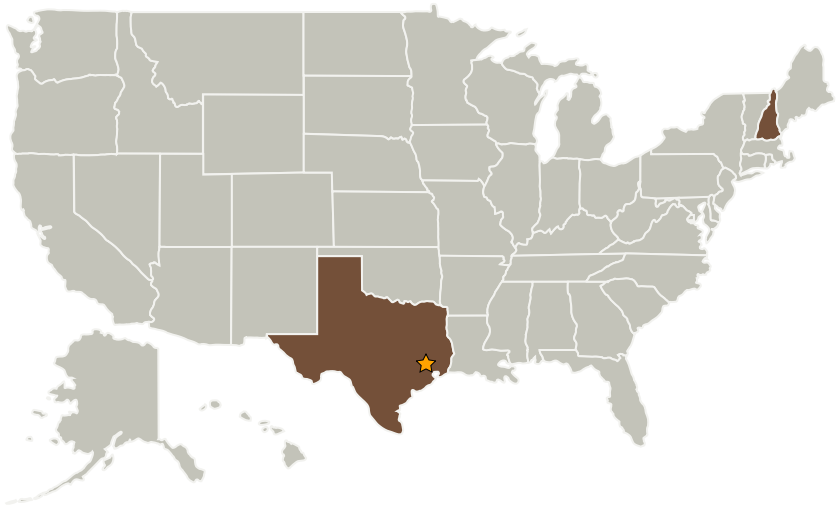
Liquid-Liquid Heat Exchanger With Zero Interpath Leakage, Phase I

Completed Technology Project (2006 - 2006)

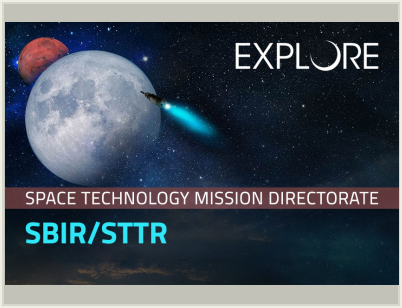
Project Introduction

Future manned spacecraft will require thermal management systems that effectively and safely control the temperature in inhabited modules. Interface heat exchangers will be required that isolate the heat transfer fluid in the spacecraft thermal bus from the circulating water used to cool inhabited modules. We propose to develop an innovative heat exchanger that provides two completely independent physical barriers between the two fluids in the interface heat exchanger. This isolated flow path heat exchanger incorporates two key innovations: (1) an innovative and simple core construction that separates the two fluids while providing a large heat transfer area, and (2) innovative materials that enable efficient heat transfer between the two fluid streams. The proposed heat exchanger is lightweight, efficient, and simple to fabricate. Phase I proves the feasibility of our approach through laboratory demonstrations of the key technologies. In Phase II we will design, build, and demonstrate performance of a full-scale interface heat exchanger sized for a specific NASA application.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Creare LLC	Supporting Organization	Industry	Hanover, New Hampshire



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
New Hampshire	Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.2 Thermal Control Components and Systems
    - TX14.2.3 Heat Rejection and Storage